

Washington State On-Site Wastewater Technical Review Committee

Minutes for the May 30, 2001 Meeting

Approved on December 12, 2001 by Vote of the
Committee



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MEETING ATTENDEES

Members Present

1. Dean Bannister, Installers
1. Kevin Barry, Eastside Environmental Hlth
2. Clifford Bates, LHJ Field Staff
3. Scott Jones, Engineers
2. Melanie Kimsey, Dept of Ecology
4. Bill Peacock, Public Sewer Utilities
5. Tom Rogers, Proprietary Devices
6. Mike Vinatieri, Westside Environmental Hlth

Members Absent

1. Bob Monetta, Chair, Realtors

DOH Staff / AG's Office

1. Wayne Turnberg, TRC Coordinator
2. Laura Benefield, Wastewater Mgt Program
3. John Eliasson, Wastewater Mgt Program
4. Jim Vanderslice, Office of Env Hlth Assessment
5. Lilia Lopez, Assistant Attorney General

Guests Who Signed In or Presented

1. Lou Hagler, Evergreen MultiFlo
2. Pete Lombardi, Orenco Systems
3. Jim Patterson, Five Star Environmental
4. David Riggs, Wahkiakum County Health Dept
5. Bill Russell, Highland Excavation
6. Bill Stuth, Sr., NCS Stuth

INTRODUCTION

The meeting was called to order by Mike Vinatieri, Acting Chair, at approximately 9:00 a.m. on May 30, 2001 in Meeting Room 1 of the Washington State Department of Health Northwest Regional Office in Kent. The meeting began with brief introductions by each committee member.

SUMMARY OF TECHNICAL DISCUSSIONS

Treatment Standard 1&2 Fecal Coliform Testing Protocol – During the March 8, 2001 meeting of the TRC, the committee discussed how NSF 40 sampling frequency protocols would apply to fecal coliform testing for systems attempting to attain a Treatment Standard 1 & 2 status on the DOH list of Approved Products and Systems. It was determined that additional information was needed prior to the committee's rendering a recommendation. From that came three assignments: Bill Peacock would request an opinion from the supervisor of the City of Spokane's Advanced Wastewater Treatment Works, Mike Vinatieri from the former director of the Southwest Washington Health District Public Health Laboratory, and John Eliasson from the DOH public health laboratory.

Presentation by Jim Vanderslice, PhD – DOH staff requested an analysis from DOH epidemiologist, Dr. Jim Vanderslice of the Office of Environmental Health Assessment, who prepared a statistical sampling simulation for fecal coliform testing when samples are collected in conjunction with NSF Standard Number 40 testing for parameters of CBOD5 and TSS. When tested according to NSF Standard 40 testing protocols, CBOD5 and TSS are sampled at a frequency of about 5 days per week for influent and effluent for 26 weeks. Jim's presentation was entitled "Sampling Frequency for Assessing On-Site Treatment System Performance."

In his presentation, Dr. Vanderslice defined two conditions to observe:

- False passing rate: % of all tests where the system passes when it should have failed.
- False failure rate: % of all tests where the system failed when it should have passed.

Dr. Vanderslice conducted a Monte Carlo simulation in which 1) the mean and standard deviation for a log-normal distribution are chosen, 2) daily values for a 180 day period are generated, 3) the analysis is repeated for 1,000 runs, 4) the false pass rate and false failure rate are calculated, and 5) the exercise is repeated for a different set of conditions (values of mean and standard deviation).

Dr. Vanderslice summarized his findings as follows:

- False pass rates ranged from <1% to 8%
- Highest false pass rates occur when variability is high
- False failure rates range from <1% to 40%
- False failure rates increase as sampling frequency decreases

Questions from the TRC –

- Question – What is the health risk from a false pass?
Response – For example, if there was a 5% false pass rate, you're still catching most of the systems that are not passing anyway. The risk of passing a system that is really bad is very low.
- Question – What sampling frequency would best address false passing?
Response – 4 vs 3 vs 2 day sampling per week really doesn't make a lot of difference for false passing rates. Of note, false failure rates increase as the sampling frequency decreases. The risk of failure due to false failures falls onto the industry when lesser samples are collected at a lesser sampling frequency.

Memorandum from Mike Coster, Laboratory Supervisor, WWMgmt AWTP Lab – At the request of Bill Peacock, Mike Coster prepared an opinion memorandum of sampling frequency to evaluate the disinfection capability of a wastewater treatment systems. In his memorandum, Mr. Coster concluded:

The requirement that fecal coliform testing be performed at the same frequency as BOD5 and/or CBOD5 and TSS (5 days/week) is not necessary to properly evaluate the disinfection capability of the system. Three days per week would suffice. Since the necessary reductions in indicator organisms represent many orders of magnitude decrease (for a successful test) it is appropriate to apply a different test frequency than that of the other more conventional direct measurements of pollutants.

- Bill Peacock noted that their plant tests are sampled 3 times per week, and that volumes of wastewater processed ranges from 240,000 gallons per day to over 1 million gallons per day. In Bill's opinion, public health would not be jeopardized by testing on a sampling frequency of 3X/week.

Laura Benefield presented a cost comparison of testing at various frequencies following NSF Standard 40 testing protocols. NSF fecal coliform testing costs for different sampling frequencies would be as follows:

Sampling Frequency	(Freq)(# Weeks)(\$/Sample) (Influent/Effluent Samples)	Approximate Cost
2 x per week	(2x26x50)(2)	\$5,200.00
3 x per week	(3 x26x50)(2)	\$7,800.00
4 x per week	(4x26x50)(2)	\$10,400.00
5 x per week	(5x26x50)(2)	\$13,000.00
6 x per week	(6x26x50)(2)	\$15,600.00
7 x per week	(7x26x50)(2)	\$18,200.00

- MOTION – Have the testing standards at 3X/week with a guidance block that based on analysis – with cautionary language that higher frequency reduces the potential for false failure rates, and that the proponent take that into consideration. Have this standard extended to all treatment systems.
- SECOND – Clifford Bates
- VOTE – 7 in favor, 1 opposed

Intermittent Sand Filters –

Issue #1 – Dosing to Course Sand – During the March 8, 2001 meeting, Dean Bannister raised a concern regarding how the Intermittent Sand Filter RS&G addresses dosing when using coarse sand. Dean noted that setting a timer for 18 doses per day has no association with what happens during a pressure test. Dean expressed concern that the current document does not provide enough information for a proper design, or to determine if the system fully charges. Specifically, in the design section of the RS&G, Dean feels that the .25 dosing has been cast in stone without enough information establishing why. The .25 value was recommended by the Wisconsin study. However, if .25 is used, there are design issues to decide upon.

- MOTION – Scott Jones presented a motion that a document be prepared that can be sent to LHJs and designers relative to dosing frequency and orifice loading rates specific to the 18 doses/day.
- SECOND – Clifford Bates provided a second to the motion.
- DISCUSSION – Dean noted that the designers need a little information to get where they need to go. This can be readdressed in greater detail at a later date.
- VOTE – 8 in favor / None opposed.
- ASSIGNMENT – Dean will develop language to address this issue. Dean will work with Scott Jones and John Eliasson to develop this language. Once developed, the draft language will be transmitted to the TRC for their review.

Issue #2 – Vertical Separation Allowances – The committee noted that Section 2.2 of the Intermittent Sand Filter RS&G document provides that effluent from an ISF can be discharged to 12 inches of vertical separation., which is in conflict with the Effluent Quality Drainfield RS&G document.

- ASSIGNMENT – Because Laura Benefield is the DOH lead on the Effluent Quality Drainfield RS&G document, Kevin Barry will work with Laura to look into this issue and return to the TRC at its next meeting.

Issue #3 – Additional Issues from the March 8, 2001 TRC Meeting – During the March 8, 2001 meeting, John Eliasson was given an assignment to provide additional information for TRC discussion on issues relating to cover soil, loading rates, and filter fabrics (see the March 8, 2001 meeting minutes for details on these discussions). John informed the committee that he had not yet completed that assignment due to other time commitments.

- MOTION – Give these issues back to John to research the issues to provide the TRC some data/information, and return with recommendations for discussion.
- SECOND – Bill Peacock
- VOTE – 8 in favor / None opposed

Eljen In-Drain Update – Lilia Lopez from the Washington State Office of the Attorney General provided an update on the status of the Eljen In-Drain appeal. The DOH denial of the Eljen In-Drain experimental system application was appealed by Eljen to the Office of Professional Standards (OPS), which is the DOH administrative hearings unit.

The list of issues developed by the TRC based on meetings held in December 1999 and March 2000, served as the basis for the DOH denial, which was transmitted by DOH letter dated June 13, 2000. These issues are summarized as follows:

1. Too short a time period for testing a disposal component (18 months)
2. Impact of loading at the proposed loading
3. Monitoring ports or locations
4. Does not purify effluent for TS1&2 for solid type 1A
5. Inconsistent with RS&G sizing for effluent quality
6. Application rates is undefined and inconsistent with WAC
7. Determination of bottom area is undefined

OPS found that three of the bases for denial were valid (1, 2, and 4), but that the other bases were not, and therefore rejected. OPS deferred the denial back to DOH asking only the three bases for denial are in and of themselves valid for the denial. Eljen appealed this action by OPS to Superior Court arguing that the OPS judge did not have authority to do this. Eljen dropped that appeal based on further discussion with DOH. Now the case is back in the hands of the OPS judge who can ask questions and render a decision. Upon final determination by the judge, if denied, Eljen will almost certainly appeal the decision to Superior Court.

Nibbler, Jr. – Results of Testing in Washington State – Laura Benefield brought this issue to the TRC as a follow-up to an adjudicative proceeding settlement agreement between the DOH and NCS Stuth involving a testing protocol for the Nibbler, Jr. as a Category 2 ATU. Laura presented the TRC with information relating to the agreement, and to the testing and findings that were carried out by NCS Stuth, requesting that the committee review the agreed upon testing protocol, and to render a recommendation on whether or not the test data meet the stated protocol parameter levels.

Laura presented the committee with a history of the application by NCS Stuth to have the Nibbler, Jr. approved in Washington state and listed on the DOH List of Approved Products and Systems as an aerobic treatment device. Laura also presented her conclusions and request for TRC input as follows:

The pass/fail criteria has been set forth in the Settlement Agreement as, 200 mg/L BOD5 (Biochemical Oxygen Demand, five day), 125 mg/L TSS (Total Suspended Solids), and 25 me/L FOG (Fats, Oils, and Grease). The performance report indicated four separate exceedances to the criteria:

1. Site F, October 18, 2000, BOD5 reading of 330 mg/L
2. Site G, September 6, 2000, BOD5 reading of 240 mg/L
3. Site N, October 11, 2000, BOD5 reading of 270 mg/L
4. Site S, September 27, 2000, BOD5 of 400 mg/L

It is the request of the Department of Health that the Technical Review Committee review the NCS submittals and provide comments to DOH at the October, 2001 TRC meeting.

Bill Stuth, Sr. conducted a presentation of the test data for the committee in a series of overheads. This information appears in the “Wastewater Testing Report – Nibbler, Jr. Certification,” January 16, 2001, which was prepared DR Strong Consulting Engineers, Inc. for NCS Wastewater Solutions.

- **ASSIGNMENT** – The TRC should review the provided information, and return to the October 2001 TRC meeting with comments to address these questions:
 - a) Did the applicant meet the established protocol?
 - b) Did the applicant meet the criteria of the binding settlement agreement?
 - c) Is the protocol acceptable in the idea of being equal to NSF Standard No. 40 (This is an additional side note)
 - d) Did the Nibbler, Jr. pass or fail the testing protocol?

EZflow – Update on Drainfield Sizing – Wayne Turnberg presented an update on the status of the EZ Drain Company’s request for drainfield size reduction for EZflow products. Wayne noted that during the TRC’s meeting on May 18-19, 2000, the TRC recommended to the Department to allow EZflow drainfield sizing reductions comparable with gravelless chamber systems. This was based on the committee’s understanding from comment made by Alex Mauck during the March 2, 2000 meeting that the EZflow product had a greater infiltrative capacity than gravelless chamber products, which implied that the EZflow engineered sizing would result in a drainfield sized smaller than that of a gravelless chamber system. The Department interpreted the TRC’s recommendation to mean that drainfield sizing allowances be extended to EZflow products that are equivalent to those allowed for gravelless chamber products, but not to exceed the EZflow manufacturer’s sizing recommendations. Based on this, sizing could not always be directly comparable to that allowed for gravelless chamber systems because under certain soil types, the engineered sizing recommendation for certain EZflow products results in a larger drainfield size. Wayne described the following tables to the committee, which is what the DOH approval would be based upon:

Allowed Reduced Drainfield Sizing for Model 1003-T [10”/3-Unit Triangular– 24” trench width]

Soil Type	Model 1003-T Allowed Drainfield Size Reduction	120 Gal/Bdrm/Day	150 Gal/Bdrm/Day ³
		Model 1003-T Required Linear Feet per Bedroom ¹	Model 1003-T Required Linear Feet Per Bedroom ¹
1A	No Reduction Allowed	See Footnote ²	See Footnote ²
1B	No Reduction Allowed	See Footnote ²	See Footnote ²
2A	20%	40	50
2B	20%	48	60
3	40%	45	56
4	40%	60	75
5	40%	80	100
6	40%	180	225

Allowed Drainfield Sizing for Model 1003-H [10 Inch / 3-Unit Horizontal– 30” trench width]

Soil Type	Model 1003-H Allowed Drainfield Size Reduction	120 Gal/Bdrm/Day	150 Gal/Bdrm/Day ³
		Model 1003-H <i>Required Linear Feet per Bedroom¹</i>	Model 1003-H <i>Required Linear Feet Per Bedroom¹</i>
1A	No Reduction Allowed	See Footnote ²	See Footnote ²
1B	No Reduction Allowed	See Footnote ²	See Footnote ²
2A	17%	33	42
2B	17%	40	50
3	17%	50	62
4	17%	66	83
5	17%	89	111
6	17%	199	249

Allowed Drainfield Sizing for Model 1203-H [12” / 3 Unit Horizontal – 36” trench width]

Soil Type	Model 1203-H Allowed Drainfield Size Reduction	120 Gal/Bdrm/Day	150 Gal/Bdrm/Day ³
		Model 1203-H <i>Required Linear Feet per Bedroom¹</i>	Model 1203-H <i>Required Linear Feet per Bedroom¹</i>
1A	No Reduction Allowed	See Footnote ²	See Footnote ²
1B	No Reduction Allowed	See Footnote ²	See Footnote ²
2A	20%	27	33
2B	20%	32	40
3	25%	38	47
4	25%	50	63
5	25%	67	83
6	25%	150	188

¹ Calculation figures are rounded to the nearest whole number.

² See the DOH Effluent Quality-Based Drainfields, Recommended Standards and Guidance, Effective Date – May 15, 2000.

³ This column is included to assist those local health jurisdictions that use 150 GPD/bedroom flow rates for drainfield sizing.

Alex Mauck of the EZ Drain Company addressed the committee on this issue. Mr. Mauck described his product as an effluent delivery system that can function equally as well if not better than gravelless chamber products. Mr. Mauck mentioned an additional study supporting his position that he would make available to the committee, and that it was also his position that although the EZflow engineered sizing is greater than the gravelless reductions under certain circumstances, that the formulas for both gravelless chambers and EZflow products need to be the same.

- **MOTION** – Drainfield sizing allowances should be extended to EZflow products that are equivalent to those allowed for gravelless chamber products, but not to exceed the EZflow manufacturer’s sizing recommendations.
- **DISCUSSION** – The committee discussed Mr. Mauck’s request to have his product sized equally to that allowed for gravelless chamber systems. Mark noted that the problem with that approach at this point is that the DOH is uncomfortable with allowing a sizing that conflicts with an engineered sizing. Mark noted that Mr. Mauck has demonstrated his product under the manufacturer’s sizing guidelines. At this point, he suggested that the next step would involve Alex demonstrating his product to the

committee at the 20/40% reduction allowed for gravelless chambers. Alex agreed to this as well, but asked for the interim reduction until the additional information can be gathered.

The committee responded that it agreed with the way the DOH interpreted its May 2000 vote on this issue. The TRC also noted that its granting of the interim reduction does not preclude additional discussion on this subject.

The TRC requested that Mr. Mauck ask the engineer to provide some justification for the additional reductions, ignoring those allowed for gravelless chambers, that would support Mr. Mauck's request.

- **GENERAL CONSENSUS** – By general consensus of the committee, the committee agreed with the motion. The committee also agreed to consider additional information provided by the EZ Drain Company that supports the EZ Drain request for a drainfield size reduction of 20% in soil types 2A and 2B, and 40% in soil types 3-6 for all EZflow products currently approved for use in Washington state.

ADMINISTRATIVE/OTHER ISSUES

March 8, 2001 Meeting Minutes Review – Wayne Turnberg noted that the Minutes from the March 8, 2001 meeting had been approved via review and approval by email and fax. Final copies of the minutes had been distributed to the committee prior to the meeting.

Process Issues – With regard to use of expertise from retiring members, the committee agreed to the following approach:

- Continue to send agendas to the retired members for one year after leaving the committee.
- For transitional issues, the DOH will advise the retired members of that the issue is raised, provide information upon request, and solicit their input.

Next Meeting – The next TRC meeting is scheduled for October 15-16, 2001 in Conference Room 1 of the Department of Health's Northwest Regional Office in Kent.

MEETING MATERIALS¹

Administrative/Other Materials

Meeting Agenda

1. Meeting Agenda, May 30, 2001

Treatment Standard 1&2 Fecal Coliform Testing Protocol

1. Powerpoint Presentation by Jim VanDerslice, PhD, May 30, 2001.
2. Memorandum From Mike Coster, Laboratory Supervisor, to Bill Peacock Re: Proposed Testing Requirements – Fecal Coliform in Proprietary Packed Bed Filters – Comments. April 18, 2001.
3. NSF cost for fecal coliform testing: Influent and effluent sampling, 26 weeks. Prepared by Laura Benefield for the TRC meeting. May 30, 2001.

Intermittent Sand Filters

1. Intermittent Sand Filter Systems RS&G, printed February 27, 2001 with proposed edits. Note: This document was presented to the TRC during its March 8, 2001 meeting.

Eljen In-Drain Update

1. Letter from Bill White to Rhys Sterling and Joseph Glasser regarding the DOH decision on the Eljen experimental system proposal. June 13, 2000.
2. State of Washington Office of Professional Standards, Findings of Fact, Conclusions of Law, and Final Order. Docket No. 00-07-C-1007EH. December 18, 2000.

Nibbler, Jr. – Results of Testing in Washington State

1. Nibbler, Jr. Testing Results Review Summary. Prepared by Laura Benefield for the TRC. May 30, 2001.
2. Department of Health Office of Professional Standards, Settlement Agreement. No. 98-01-C-1014WW. Unsigned.
3. Washington State On-Site Wastewater Technical Review Committee. Minutes for the September 10-11, 1998 Meeting.
4. Letter from Mark Soltman to William L. Stuth regarding the DOH response to the NCS proposed testing protocol for the Nibbler, Jr. November 4, 1998.
5. Wastewater Testing Report – Nibbler, Jr. Certification. Prepared by DR Strong Consulting Engineers Inc., Kirkland, Washington. January 16, 2001.
6. Wastewater Testing Report – Nibbler, Jr. Certification. Prepared by DR Strong Consulting Engineers Inc., Kirkland, Washington. March 9, 2000. Revised May 7, 2001.

EZflow – Update on Drainfield Sizing

1. Letter from Kenneth Pankow, PE, to Alex Mauck. May 29, 2001.
2. Letter from John R. Rove, Principal Engineer, LAW Engineering and Environmental Services, Inc., Atlanta, Georgia, to Fred Rowe, RAPAC Inc. Re: Results of Testing of EZ Flow Beads – LAW Engineering Project No. 50161-8-2142-01-831.

¹ All listed meeting materials are maintained by the Department of Health in a meeting manual entitled: *Technical Review Committee Meeting, May 30, 2001*. For further information, please contact the Department of Health's Wastewater Management Program at (360) 236-3062.